



Focus on Reducing Smoke from Land Clearing Burning

From the Department of Ecology's Air Quality Program

Burning can be a convenient and inexpensive way to dispose of unwanted forest debris. Unfortunately, smoke from burning can be a significant nuisance and even a health risk for some people. Following these recommendations will help assure that smoke from your fire does not cause health problems for your neighbors.

For a cleaner fire, burn HOT!!

Combustion occurs when oxygen joins quickly with other substances, producing flames, heat, carbon dioxide, and water vapor. The three conditions needed to start and maintain a fire are:

- + **Fuel:** This is usually a substance that contains carbon-hydrogen compounds, which will burn. Land-clearing waste is a solid fuel, ranging from light straw or grass to dense wood. These fuels contain varying amounts of minerals (which produce ash upon burning) and moisture.
- + **Kindling temperature:** This is the temperature to which a fuel must be heated to catch fire. Wood ignites at temperatures between 375 and 510 degrees Fahrenheit. Any moisture in or on the fuel will have to be boiled off (at 212 degrees Fahrenheit or less for volatile plant sap) before the fuel can get hot enough to burn well. Burning at low temperatures creates smoke. Smoke is simply the result of incomplete combustion.
- + **Oxygen:** Not all fuels burn the same way, but all require plenty of oxygen. Smaller pieces of fuel will burn more easily and quickly than large chunks because more fuel surface area is available to interact with oxygen. Carbon monoxide, volatile organic compounds, and soot particles are produced when oxygen is insufficient.

Don't leave your fire unattended. In addition to an unattended fire creating a potential runaway fire hazard, you need to be on hand to maintain a hot fire. Once the fire is started, feed it continuously, as fast as the fire will consume the fuel.

Ignition techniques

- + Use an ignition device that does not produce black smoke, such as butane, propane, LPG or diesel oil burners. A burning tire is NOT an appropriate ignition device. In fact, it is illegal to burn tires outdoors for any reason.
- + Light a test fire. See how well the waste material burns and where the smoke is going. Quit if the fuel is too damp or the smoke is blowing toward homes, roadways, or any other public area.
- + If burning a field, light the downwind side of the field. The fire burns more slowly, but more thoroughly. It produces fewer particles and doesn't leave behind as many smoldering, smoky patches.
- + For ditch and weed burning, kill the grass or weeds first and allow them to dry. Burn wastes using field crop igniting techniques. (Or course, never burn materials that are prohibited by law.)

- + If burning large fuel, such as trees, stack your starter pile of brush and wood as tightly as possible, but make sure it has enough air circulating throughout. Parallel piling is best. Ignite by using a propane torch or another commercial lighting device that will raise a large area of the fuel pile to combustion temperature. Add fuel after your starter pile is fully engulfed. Avoid pushing dirt into the pile. Don't make the pile too large. Remember, don't use tires or pour diesel oil on the fire to ignite it! Both are illegal.

Why do I need to worry about smoke?

We've known for a long time that smoke is bad for human health, whether it's from a cigarette or from an outdoor fire. When you burn, the resulting smoke can affect your neighbors in the entire surrounding area. It's illegal to unreasonably impact others with smoke from your fire. If you feel you are being impacted by smoke, please call Ecology's toll-free smoke complaint line at **1-866-211-6284**.

Prohibited materials

Remember it is illegal to burn these materials:

- + Paint
- + Construction debris
- + Tires
- + Cardboard
- + Dead animals
- + Demolition debris
- + Asphalt
- + Plastic
- + Treated wood
- + Paper
- + Petroleum products

Alternatives to burning

You can only legally burn vegetative matter. That same material, when chipped, composted or mulched can improve your garden, flowerbed, or lawn without polluting your air. For waste that cannot be recycled in that manner, consider hauling it to your local landfill. For more information about landfills and composting in your area, contact your county's solid waste office.

For more information

For more information on land clearing burning, contact the following:

Department of Ecology Eastern Regional Office:

In Ferry, Stevens, Pend Orielle, Lincoln, Grant, Adams, Whitman, Franklin, Walla Walla, Columbia, Garfield and Asotin counties, call (509) 329-3400.

Department of Ecology Central Regional Office:

In Okanogan, Chelan, Douglas, Kittitas, and Klickitat counties, call (509) 575-2490.

Or visit our website at

http://www.ecy.wa.gov/programs/air/outdoor_woodsmoke/Outdoor_Burning.htm

If you need this information in another format, please contact Tami Dahlgren at (360) 407-6800. If you are a person with a speech or hearing impairment, call 711, or 1-800-833-6388 for TTY.